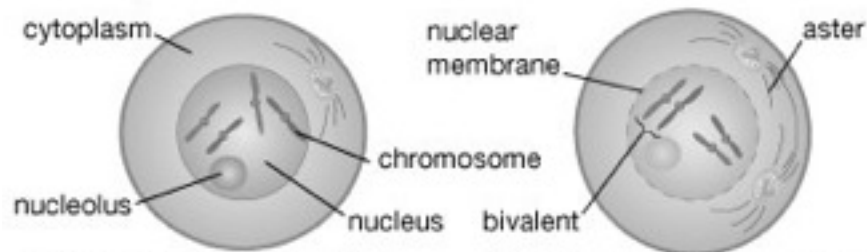
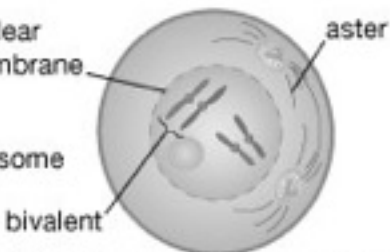


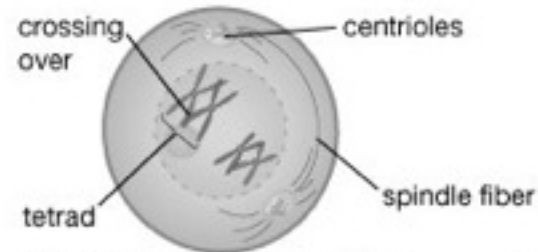
Meiosis, or sex cell division



At the onset of meiosis, DNA strands thicken into chromosomes. Homologous, or like, chromosomes begin to approach each other.



Homologous chromosomes pair to form bivalents. The centrioles divide and move to opposite poles of the cell.



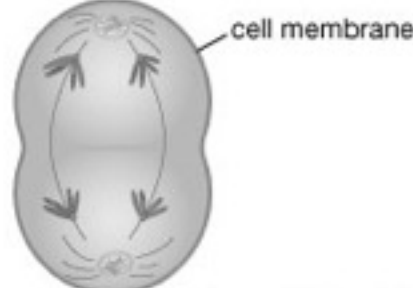
The bivalents duplicate to form tetrads, or four-chromatid groups. The nuclear membrane disintegrates. Crossing over (recombination) occurs.



In metaphase I, the tetrads, attached to spindle fibers at their centromeres, line up at mid-cell.



In early anaphase I, the tetrads separate, and the paired chromatids move along the spindle to their respective centrioles.



In late anaphase I, the chromatids have almost reached the spindle poles. The cell membrane begins to constrict.



In telophase I, nuclear membranes enclose the separated chromatids. The cell membrane completes its constriction.



The first meiotic division ends. There are now two cells, each with the same number of chromatids as the parent cell.



Prophase II begins. In the second meiotic division, homologous chromatids do not duplicate but merely separate.



In metaphase II, the chromatids line up at mid-cell. The centrioles and asters are at the poles. A spindle has formed.

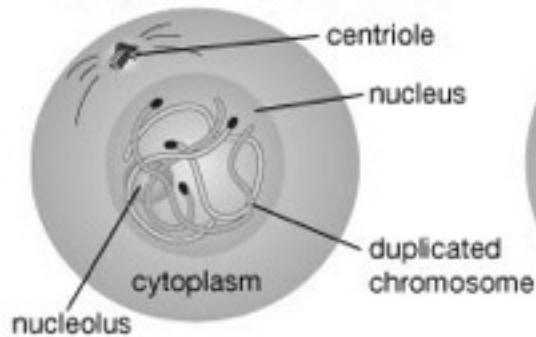


In anaphase II, the now-separated chromatids approach their respective poles. The cell membrane begins to constrict.

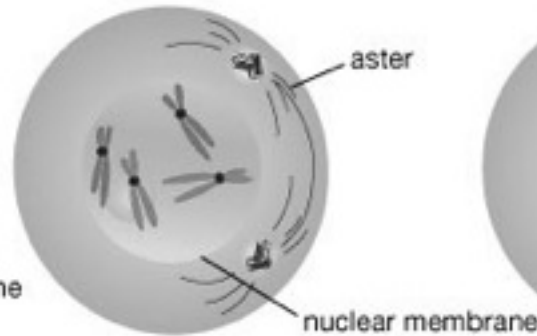


Telophase II has been completed. There are now four cells, each with half the number of chromosomes of the parent cell.

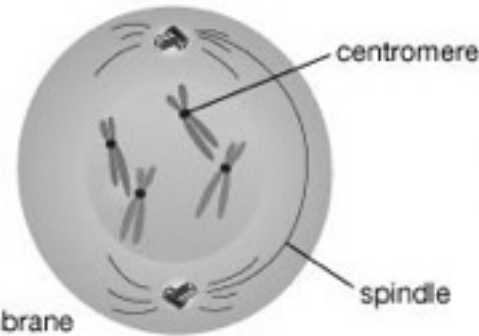
Mitosis, or somatic cell division



Prior to mitosis, thin strands of DNA in the cell nucleus thicken into chromosomes, which then duplicate themselves.



In early prophase, the centrioles divide and, with the asters, move apart. The nuclear membrane begins to disintegrate.



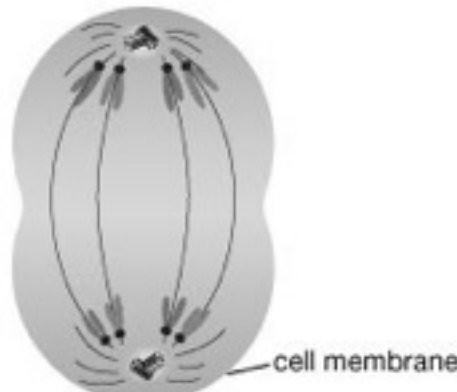
In late prophase, the centrioles and asters are at opposite poles. The nucleolus and nuclear membrane have almost disappeared.



The doubled chromosomes—their centromeres attached to the spindle fibers—line up at mid-cell in the metaphase.



In early anaphase, the centromeres split. Half the chromosomes move to one pole, half to the other pole.



In late anaphase, the chromosomes have almost reached their respective poles. The cell membrane begins to pinch at the center.



The cell membrane completes constriction in telophase. Nuclear membranes form around the separated chromosomes.



Mitosis completed, there are two cells with the same structures and number of chromosomes as the parent cell.